REMARKS

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Rejections Under 35 U.S.C. §103

Claims 1-23 were rejected under 35 U.S.C. §103(a) as being unpatentable over Tappan et al., U.S. Patent No. 6,603,756 [Tappan] in view of Chen, U.S. Patent No. .

Tappan:

Tappan describes, in the abstract, a "router has a first interface to receive a packet from an external autonomous system and a second interface to transmit the packet as an outgoing packet to a border router. A processing engine places a first tag on the outgoing packet in accordance with a standard tag switching protocol. A shared field in the outgoing packet has at least one bit to indicate a use of the shared field, the at least one bit set by the processing engine to indicate the shared field carries a second tag, the second tag indicating a route from the border router to a destination of the packet…"

The Examiner states, at page 2 of the office action:

"… As per claim 1, Tappan discloses …. Receiving, from outside the domain … an information message at one of the network devices …the information message having routing information (see fig. 6, and col. 5, line 65 to col. 6 line 54); applying the given policy (i.e., the policy of domain 44) of the network device that received the information message to the routing information in the information message to produce policy filtered routing information (see col. 5, line 65 to col. 6, line 54); and flooding the policy filtered routing information to each of the plurality of network devices (see col. 8, line 51 to col. 9 line 25)…"

Chen:

Chen describes a technique that allows selective generation of routing update messages by a router for its neighboring peer routers of a computer network. In the Abstract, Chen describes "...When an entry version number of a route is incremented, the reason (i.e., 'what has changed') for the change in the best path of the route is identified and recorded. Recordation of the reason is effected using change flags. These flags, along with the characteristics of each neighbor peer router, are considered when determining whether the route is eligible for further consideration of routing updates to the neighbor..."

Thus Chen describes a system which selectively forwards routing updates to a neighbor, with the selection criteria based on entry version numbers of a route.

At issue appears to be whether Tappan teaches or suggests 'flooding the routing information' received from an external domain into the internal domain. The Examiner states that Tappan teaches such a limitation at column 8, line 51 to col. 9 line 55.

Applicants would first note that Tappan describes the forwarding of Link State Advertisements (LSAs) that include *hierarchial labels*. Tappan states at column 7, line 16-17 "An LSA is the unit of topological information that routers exchange under OSPF..." Tappan further states:

"... When the OSPF message is of the LSA Update type, the message's body assumes the format that Fig. 7's third row depicts.... the particular format assumed by the LSA being indicated by its LSA-type field depicted in FIG. 7's fourth row. The particular LSA format of interest here is identified ... as an "AS-External LSA." This is the type of LSA that a router

ordinarily employs to transmit information regarding external destinations, i.e., destinations outside the OSPF domain. In accordance with the present invention, though, that type of LSA is employed to install hierarchical labels along routes to E-ASBR..."

. Applicants have amended the claims of the invention to more clearly distinguish over the use of hierarchical labels in LSAs, as used in Tappan. Thus the claims of the present invention recite that the 'routing information' that is forwarded by the present information is selected from a group 'including a route and a signaling protocol...' Tappan neither describes nor suggests that the information exchanged between an external domain and an internal domain includes either a route or a signaling protocol.

In addition, Applicants would disagree that Tappan teaches that externally received routing information is 'flooded' into the autonomous system. Rather, Applicant interprets Tappan to be clear in its desire to prohibit routers from flooding external routing information throughout an internal domain, instead replacing the external router identity with the identity of the egress router.

Tappan describes at column 7, lines 35 – col. 8, lines 25, in part..::

"... An AS-External LSA is conventionally an indication that the advertising router has become aware of an external destination. To indicate that the advertising router can relay data packets to that external destination, it places the address 0.0.0.0 in the Forwarding Address field; otherwise,.... ***Although E-ASBR is here using the AS-External LSA for a purpose other than to report an external destination's location,*** it still places the default route 0.0.0.0 in its Forwarding Address field, for a reason that will manifest itself presently...From the point of view of E-ASBR, the purpose of this LSA is to tell upstream (in the FIG. 6 sense) neighbor routers that, as will be illustrated below, they should "pop" the label stack of a packet whose top label represents the upstream neighbor's forwarding-table entry for E-ASBR. **To signal its intention that the LSA be interpreted as conveying such label information, E-ASBR does two things. First, it places a zero in the first bit of the LSA's External Route Tag field.** When that bit is

set, existing OSPF speakers interpret the remainder of that field in accordance with RFC 1403, which describes a way to input into the OSPF domain a route that an autonomous-system border router has learned by way of BGP. **By keeping this bit zero, E-ASBR is preventing routers from interpreting the field in that manner**. Second, it places an MPLS label in the External Route Tag field...."

It would appear that Tappan ensures that BGP information is not flooded into the domain. The Examiner is respectfully referred to Figure 9 of Tappan, which illustrates what occurs to routing information that is received from an external domain. At column 9, lines 1-12, Tappan describes:

> "..When, as is the case in the scenario that FIG. 8 illustrates, the received or newly generated LSA is an AS-External LSA in which the External Route Tag field's first bit is zero and its Format part identifies it as containing an MPLS label, an area border router such as ABR2 that implements the present invention's teachings executes the FIG. 9 routine to determine whether to send the LSA to a given neighbor router as part of the flooding procedure. In the case of the LSA that ABR2 receives from TR2, the result of the decision represented by block 50 is negative: it was E-ASBR, not ABR2, that originated that LSA. So the routine proceeds to that drawing's block 52, which represents determining whether the LSA originated in the area into which ABR2 is deciding whether to send it. Although FIG. 8 shows no ABR2 neighbor in Area 2 other than TR2, from which ABR2 received that LSA, there could be others, and ABR2 would send the received LSA to them, as block 54 indicates..."

Thus, in Tappan, information is not flooded into the domain unless it is generated by the border router *in the domain*.

The Examiner states, at page 2 of the office action that:

> "Tappan discloses receiving routing information from router S of an outside domain, modifying the received routing information by additional routing label parameters (see column 8, lines 51-62) ... Tappan is silent regarding applying a given policy of the domain to the routing information to produce filtered information, however Chen ... discloses propagating routing update information to a neighboring router including the step of applying a given policy to a routing information (see col. 6, lines 50 into col. 7, line 2). This allows selective generation of routing update messages by an interdomain router for its neighboring peer routers within an autonomous systems of a computer network to avoid generation of unnecessary routing updates..."

Such a combination neither describes nor suggests 'receiving routing information from an external system, and flooding the routing information to internal nodes, as recited in the claims.

The Examiner further states at pages 2-3 of the office action:

> "... Furthermore, Tappan reference, specifically in according with figure 6, there are plurality of routers in figure 6 within a domain such as domain 44 (i.e., TR1, ABR2 etc. to E-ASBR). Such routers within commonly administered domain use OSPF protocol to exchange routing information. Routers outside domain 44 such as Router S and Router D. Routers S, D and routers in domain 44 such as I-ASBR and E-ASBR are considered border router or autonomous systems since they connect their domain to other neighboring domains, such routers use BGP protocol to exchange routing information...
>
> In addition, Tappan discloses an autonomous border router (I-ASBR) in domain 44 for receiving an information packet from another autonomous border router S. The information packet received by I-ASBR contain Border Gateway Protocol (BGP) used by border routers such as the outside domain router S and routers in domain 44 in order to exchange routing information (see col. 6, lines 1-27). Furthermore, figure 6 describes a situation where a source router S (i.e., border router for an outside domain) transmits an information packet toward destination router D which is also another border gateway router through routing domain 44. The autonomous border router of the routing domain 44 receives the packet. Autonomous border router such as router S on an outside domain and router I-ASBR on domain 44 use BGP protocol which is an exterior routing protocol to exchange routing information (see col. 6, line 21-27, which describes BGP protocols are used by routers which are not on the same domain to exchange routing information..."

The Examiner appears to be using the facts that Tappan describes a number of routers in a number of different domains, and that. OSPF is used internal to the domain, and BGP is used to exchange information by Border routers as teaching the limitations of the claims. However, the mere fact that these protocols are mentioned is not enough; patentable weight must be given to the language of the claims.

For example, claim 1 recites "...receiving an information message at a network device in the domain, the information message having routing information including information selected from a group including a route and a signaling protocol, the route including a destination ...

responsive to the information message being received from a network device external to the domain modifying the routing information by applying the defined policy of the domain to the routing information to produce policy filtered routing information, wherein the policy filtered routing information is selectively flooded to network devices internal to the domain responsive to the defined policy and the destination of the route..."

A significant advantage of flooding the information gained via BGP *into* the domain is described in Applicant's specification as the fact that it removes the requirement of having each network device being connected to each other network device. (A typical BGP requirement, since it allows all nodes to directly access all border routers). Such a physical constraint is not necessary in the present invention, as routers internal to the domain may calculate routes to the border router that can get them to their destination address, since BGP information is internally flooded. Applicants would respectfully submit that no such advantage is realized by Tappan.

Indeed, Tappan describes, at column 10:

"... To appreciate the way in which the illustrated embodiment avoids this result, recall that routers configured as OSPF area border routers send into one area only summaries of the topological information that describes an adjacent area. More specifically, they send LSAs of a type, known as a Summary LSA, that reports to one area the presence within another area of an address range without specifying the other area's particular addresses within that range..."

Applicants realize, however, that the Examiner is relying on a combination of Tappan and Chen in reaching the limitations of the claimed invention. Applicants would note that Chen refers only to the selective propagation of interdomain LSAs, with the determination of whether to propagate the information being based on the version numbers. Applicants respectfully submit that the combination of Tappan and Chen fails to teach or suggest the limitations of the claimed invention, which recite "...A method of distributing routing information through a plurality of

network devices, the plurality of network devices being members of a domain having a defined policy relating to forwarding of routing information, the method comprising ... receiving an information message at a network device in the domain, the information message having routing information including information selected from a group including a route and a signaling protocol, the route including a destination .. responsive to the information message being received from a network device external to the domain modifying the routing information by applying the defined policy of the domain to the routing information to produce policy filtered routing information, wherein the policy filtered routing information is selectively flooded to network devices internal to the domain responsive to the defined policy and the destination of the route; and responsive to the information message being received from a network device internal to the domain, flooding the routing information to each of the plurality of network devices...."

Accordingly it is respectfully requested that the rejection be withdrawn. Independent claims 15 and 22 include limitations that have been described above as distinct over the references with regard to claim 1, and are therefore allowable for at least the same reasons as claim 1. The pending dependent claims include further patentable limitations, but are allowable by law for at least the same reasons as their parent independent claims.

Conclusion:

Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Lindsay G. McGuinness, Applicants' Attorney at 978-264-6664 so that such issues may be resolved as expeditiously as possible.

For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Respectfully Submitted,

_5/30/06_____
Date

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Docket No. 120-243
Dd: 5/28/2006